To: Barber, Craig[Barber.Craig@epa.gov]; Sullivan, Kate[Sullivan.Kate@epa.gov]; Avant, Brian[Avant.Brian@epa.gov]
From: Knightes, Chris
Sent: Fri 8/14/2015 2:28:51 PM
Subject: Rough calculations of travel time

Brian pulled together width, depth, and velocity for rivers in the San Juan watershed. As a quick rough cut, I took the 14 gages (which were for conditions over the past 5 years), and took the annual average channel velocity, and I averaged the 14 gages. This resulted in a flow velocity of 2.69 ft/s with a standard deviation of 0.80 ft/s.

The Animas River is 113 miles (596,640 ft)

The San Juan River is 210 ft (1,108,800 ft) after the Animas joins it.

We can say that the travel time down the Animas is about 2.57 days (1.98 days - 3.65 days).

and down the San Juan in 4.77 days (3.68 days - 6.79 days)

For a total traveltime of 7.33 days (5.66 days - 10.43 days)

From Hobson (1996), regression data have shown that the leading edge traveltime is 0.89xTravel time = 6.5 days.

This is simply a roughcut. It seems to match the observed travel of about a week. Brian is pulling together the WASP segmentation, which will give us a better representation.

Chris